



Public Health Information Sheet

Director
202-513-7217

Assistant Director
202-513-7226

National Capital
202-619-7070

Northeast
978-970-5033

Southeast
404-562-3124
x697

Midwest
402-661-1718

InterMountain
303-969-2922

Desert Southwest
505-988-6040

Pacific West/Pacific
Islands/Alaska
510-817-1375
206-220-4270

Web Resources

NPS Public Health:

http://www.nps.gov/public_health/

CDC:

<http://www.cdc.gov>

State and Local Health Departments:

<http://www.cdc.gov/mmwr/international/relres.html>

Norovirus – Response and Cleanup

Environmental surfaces, foods and drinks can very easily become contaminated with norovirus since an infected person sheds an extremely large amount of virus in feces and vomitus (> 1 million virus particles/ml). This contamination can be a source of infection due to the low dose needed to cause illness – it is estimated that fewer than 100 norovirus particles can make a person sick. Contamination can occur either by direct contact with soiled hands or environmental surfaces that are contaminated with stool or vomit, or by tiny droplets from nearby vomit that can travel through air to land on food. Although the virus cannot multiply outside the human body, once food, water, or fomites (environmental surfaces which may include: furniture, railings, carpeting, doors, etc) are contaminated they can cause illness.

People who are sick with norovirus illness can often vomit violently or have explosive diarrhea without warning. Therefore staff responding to an incident (housekeeping, kitchen, maintenance, emergency medical and law enforcement) have a greater risk of exposure to norovirus than the general population and the following precautions need to be taken:

- The area needs to be cleared of all non-essential persons.
- Personal Protective Equipment (PPE) should include:
 - Disposable gloves
 - Face Mask
- All surfaces near the vomit should be promptly cleaned and disinfected.
 - Visible debris cleaned up with disposable absorbent material (double bag and discard).
 - Area within at least a 25 foot radius disinfected by the following methods or with products containing one of the following active ingredients (follow label instructions):
 - Chlorine (1000- 5000 ppm)
 - 1000 PPM: 1/3 cup of 5.25% bleach per gallon of water
 - 5000 PPM: 1 2/3 cups of 5.25% bleach per gallon of water
 - High concentrations of chlorine may be damaging to some materials
 - Ensure solution is changed/remade on a regular basis to maintain disinfectant properties
 - Activated hydrogen peroxide
 - Heat $\geq 170^{\circ}\text{F}$
 - Parachlorometaxylenol (PCMX)
 - Accelerated Potassium Peroxymonosulphate
 - Phenols
 - Quaternary ammonia compounds MAY NOT BE EFFECTIVE for norovirus disinfection .
 - Hard to clean and/or heavily soiled areas (ambulances, cabins, etc) may require additional disinfection – please contact NPS Public Health.
- Linens (including clothes, towels, tablecloths, napkins) soiled to any extent with vomit or stool should be promptly washed and dried separately at high temperature (drier temperature $>170^{\circ}\text{F}$).
- Don't forget to clean and disinfect ice buckets – people will grab the nearest container when they get sick.
- Food items that may have become contaminated with norovirus should be thrown out.
- All equipment used in the cleanup should be disinfected.
- Hands should be washed with soap and water for at least 20 seconds, and then can be followed by a hand sanitizer.

Norovirus Outbreak Control Strategies

General Sanitation

Use one of the recommended sanitizers on:

- Entire premises at least daily
- Items which are frequently handled hourly (examples – courtesy phones, service counters, kiosks, chair backs, tables, cup holders, Stair rails, balcony rails, bar rails, ice machines, etc)

Employees

- Interview each employee at the start of each shift regarding vomiting, diarrhea, or other “stomach flu” symptoms.
- Recommend:
 - All employees with gastrointestinal symptoms seek medical treatment.
 - Remain off duty for 72 hours after their symptoms end.
 - Limit contact with others.
- Monitor employees for obvious signs of illness. Ill employees should be sent home.
- Notify NPS Public Health with the number of all employees with gastrointestinal illness daily.
- Treat all fecal and vomitus events as if they are contaminated with norovirus.
- Assure that employees wash their hands at least once per hour:
 - upon entering a food area
 - after using the restroom
 - after any physical contact with anyone
 - after sneezing
 - touching the face
 - blowing the nose
 - contacting any surface
 - handling food
 - handling utensils
 - cleaning
 - smoking
 - eating
 - drinking
 - and after handling money

Guest Rooms

- Sanitize a large block of rooms in one session.
- Avoid cross contamination (do not use one sanitization cloth for bathroom surfaces and ice buckets)
- Use high efficiency particulate air (HEPA) vacuum bags.
- Sanitize ice buckets and glasses between guest check- ins.

Public Restrooms

- Install reminders on need for proper hand washing – guests and employees.
- Sanitize sinks, handles and doors hourly.

Food Preparation and Food Service

- Suspend self- service food activities.
- Vigilant handwashing efforts – including wait staff and busers.
- Strict glove use in conjunction with utensils policy for ALL food handlers – no barehand contact with ready- to- eat foods.

References:

Respiratory and Enteric Viruses Branch, National Center for Infectious Diseases, Centers for Disease Control and Prevention.

Proceedings of the Nevada Norovirus Summit, Las Vegas, Nevada July 13, 2004

If you have any questions, please contact a Regional Public Health Consultant, park sanitarian, or call WASO Public Health for more information at 202- 513- 7226.